

**Department of Chemistry, University of Florida**  
**General Chemistry (CHM2045), Spring 2019**

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<b>Instructor:</b>	<b>Miguel Angel Méndez Polanco, PhD</b> email: <a href="mailto:mmendezpolanco@chem.ufl.edu">mmendezpolanco@chem.ufl.edu</a>
<b>Lectures:</b>	{Mon, Wed, Fri} – Period 4 (10:40 – 11:30 am) @ CLB C130 <ul style="list-style-type: none"><li>• <b>TopHat</b> subscription (Required)</li></ul>
<b>Materials:</b>	<ul style="list-style-type: none"><li>• <b>Chemistry: The Molecular Nature of Matter &amp; Change</b>, 8<sup>th</sup> ed, Silberberg ~ Amateis (Suggested)</li><li>• <b>Non-programmable, scientific</b> calculator</li></ul>
<b>Office Hours:</b> @ JHH 302A	TBA
<b>TA information:</b> (OHs in CLC)	Mr. Preet Mahalay, {TBA}, <a href="mailto:preetm@ufl.edu">preetm@ufl.edu</a> Ms. Shalini Jayaraman Rukmani, {TBA}, <a href="mailto:shalinijr1993@ufl.edu">shalinijr1993@ufl.edu</a>

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**Course Description:** This course will introduce a variety of fundamental theories and concepts in Chemistry, and it is part of the year-long sequence CHEM 2045(L)/2046(L), with their corresponding labs. It teaches the scientific method, skills for problem solving, general chemistry knowledge, and a connection to the principles that govern the natural world. It will take us on a journey to describe the world around us in terms of its composition, structure, properties, and the relationships among these, and interactions, exchanges, and transformations among chemical/physical systems.

Prerequisite information and credit suitability can be found in the Undergraduate Catalogue. A minimum grade of a C is required to progress to CHM2046 or CHM2096, as well as a passing score in MAC1147 (or equivalent).

### About this class

CHM2045 is primarily ***quantitative***! We will emphasise on the ability to transform word problems and concepts into ***algebraic expressions and plots*** (and vice-versa). We will use reading assignments, *in-class* questions/discussions, and other outside activities to discover some *interdisciplinary connections of Chemistry*, at times borrowing concepts from physics, calculus, bio, etc., and to develop and apply qualitative/quantitative abilities & critical thinking. This setting intends to help you start thinking about the reach of basic concepts into real world and research applications.

- **Tip #1:** We all may need help at some point, so ask me – or your TA – questions early on in the semester. Do not wait until it is too late! Gather with friends to collaborate & discuss. We all learn differently, try what works best for you, but venture to find other ways to learn too.

### Class Resources

**Office Hours (OHs):** Office hours are your chance to receive individualised feedback and help, or discuss your goals for this course and set a plan of action accordingly. Do not hesitate to ask further questions about the material that has not been clearly understood during lecture and your readings.

- **Golden rule: Come to OHs prepared with questions.** This will help you assimilate unclear material. I anticipate you will take ownership of your progress: so come ready to show previous attempted work – that will give us a good starting point.

Emails are for administrative purposes only, *not* for distant instruction. Use office hours for all academic inquiries. If this is not possible, visit the CLC (see below). Note: questions about grades will *not* be discussed during office hours due to privacy regulations, but you can try set up a separate time to discuss such matters.

**Schedule:** See the last page of this doc for a guideline of topics covered during lectures. You should use it to prepare pre-lecture readings. The schedule is *tentative*, but exam dates are firm.

**Canvas:** I will use this online course manager (<http://elearning.ufl.edu>) to update class materials: handouts, announcements, homework, worksheets, links to relevant information, etc. It is your responsibility to check its contents periodically. Should you require assistance, the Help Desk is available 24 hours a day, 7 days a week: <http://helpdesk.ufl.edu/> or call them at (352)-392-4357

**TopHat:** We will use this technology in the classroom. It will give us a chance to interact in class to check our group progress, and it will give you the chance to earn points toward your final grade.

## GRADING

### Grade breakdown:

Progress Exams (4): 60%	ALEKS: 2%	Quizzes: 4%
Final exam: 23%	Homework: 6%	Clickers: 5%

### Letter grade cut-offs:

>90	A	>= 83	B+	>= 73	C+	>= 66	D+	<60	E
>= 86	A-	>= 80	B	>= 69	C	>= 63	D		
		>= 77	B-			>= 60	D-		

Information on current UF grading policies for assigning grade points can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

**ALEKS:** Two percent (2%) of the course grade will be based on completion of the ALEKS prep course. The deadline for this is: September 10th. Points you can earn based on completion are:

% ALEKS Completion	0 – 69%	70 – 79%	80 – 89%	90 – 98%	99 - 100%
% Grade earned	0%	0.5%	1.0%	1.5%	2.0%

**Exams:** You will take each of the 4 midterms *in the evenings, outside of class*. Exam Room Assignments will be posted to Canvas. You must use a non-graphing, non-programmable scientific calculator on exams (with log, ln, root, and exponent –scientific notation– functions). Do not forget your preferred pencils and your UF ID card. No additional materials are allowed during exams.

- **No makeups, or "do overs" for Progress Exams will be given for any reason.** If you must be absent for an exam due to a documented/approved academic or UF athletic conflict, email me the documentation at least *one week prior* to the exam (an early conflict exam will be scheduled). If you have another exam scheduled at the same time, please email me at least one week prior to the exam, so arrangements can be made for you to take the chemistry exam earlier. If you are absent for an exam due to an unpredicted, documented medical reason, you must contact me and the DoS as soon as possible, and have ready proper documentation. More information regarding this policy can be found in the *General Chemistry Exam Absence Policy* document found on Canvas.

**Average/Replace Policy.** We have incorporated this policy to alleviate the stress of potential issues that do not fall under officially-sanctioned absences: *The lowest of the four progress exams will be replaced by the average of the four progress exams.* This is intended to minimise the negative impact of a *single poor performance* but it will not completely disappear. Note that it is best not to miss exams; however, in case of absence, it is better to have a DoS excuse. See canvas for some possible mock scenarios as a guideline.

Exam grade disputes or Scantron confirmations must be performed within two weeks of the scheduled exam date. Bubbling errors will not be negotiated, and point penalties will be applied for failure to bubble in a correct form code (20%), UFID, or not taking the exam in the assigned room (10 points).

University examination and reading day policies can be found at:

<https://catalog.ufl.edu/UGRD/academic-regulations/examination-policies-reading-days/>

**In-class participation (TopHat):** A percent of the course grade will be based on performance on in-class *clicker* questions and in-discussion worksheets. You can earn points in class by correctly answering **clicker questions** through TopHat. Requirements for class attendance are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

**Discussion Sections** meet every week and your attendance is expected. Your section will provide a weekly worksheet for which you can earn points. Worksheets points are based on participation and will be grouped with lecture clicker grades, so these will count toward your overall grade. You must go to your assigned discussion section to receive credit for the worksheet. You will not receive credit if: you are more than 5 minutes late, or do not complete at least 50% of the worksheet at the end of the session. Students who have an excused absence can do the worksheet and show their work as well as the documented excuse to the TA asap within 5 days of the excused absence. No credit will be given for missed work past one week of the corresponding session.

**Online Homework/Quizzes:** These will be given **through Canvas**. Each should be completed before its due date, or otherwise you cannot access it to complete the work for the remainder of the semester. Extensions may be granted for excused absences only by contacting your instructor. You will have multiple attempts to successfully answer HW assignments, but only one attempt per Quiz. The lowest three homework grades will be dropped at the end of the semester, and only 10 Quiz-grades will count for the semester. Quizzes will be given through Canvas on a weekly basis (unless stated otherwise) and they will be available for 24 hrs. It is your responsibility to make sure you accommodate those in your schedule

### POLICIES AND EXPECTATIONS

- **Attendance:** Regular attendance is essential for your success in this class. Repeated absences in class and discussion session will make it very difficult fully engage and also earn points.
- We all love **technology!** However computers, phones, tablets, iPods, or any other device should *NOT be used for activities other than those pertaining to class during lecture time.*
- **Bring relevant materials** to class: a notebook, calculator, your preferred device to answer clicker questions online, and your willingness to engage.
- **Come prepared:** Read in advance as this will help you understand materials more effectively, and actively participate in class activities.
- **Collaborative work:** I *encourage you to form study groups* and meet with them on a weekly basis to discuss course material and to prepare for exams. Be engaged by asking questions, requesting/offering help when needed, but your final submissions of **any materials for grading must be your own!** They should reflect your own, independent work and understanding – this includes exams, HWs, quizzes, worksheets, and any material submitted for grading. *Directly copying from any source other than your own work is strictly prohibited* and is considered an *act of academic dishonesty.*
- **Study Habits:** This class demands at least  $\sim\{3-4 \text{ hrs}\}$  of study time per 1 hr of lecture time, *outside of class*, and a *sustained effort is expected* throughout the semester to complete it successfully. Do not let concepts, HWs, etc. slip away, they will put you behind pretty soon!

**Class Demeanour:** In order to have an optimal learning environment, the classroom needs to be free of disruptions. Therefore, it is expected that students come to class on time and leave only after the class is dismissed, and that students talking or cell phone noises do not disrupt the class.

**Honour Code:** As an UF student, you are bound by **The Honour Pledge** which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honour and integrity by abiding by the Honour Code". On all work submitted for credit by

students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honour Code (<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>) specifies a number of behaviours that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

### **FURTHER RESOURCES**

**Chemistry Learning Centre (CLC):** Graduate student TAs are ready to help @CLC Monday–Friday in Joseph Hernandez Hall 105. Your discussion TA will also have office hours @CLC, but you may go there at any other convenient time and ask any TA for help (TAs availability will be posted @CLC). Additionally, there is the Teaching Centre located on the ground floor of Broward Hall, if you would like to use that resource. Their web site is <http://www.teachingcenter.ufl.edu>.

**Academic accommodations:** Students requesting accommodations should first register with the Disability Resource Center (352-392-8565, <http://www.dso.ufl.edu/drc/>) by providing appropriate documentation. Once registered, students will receive an accommodation letter, which must be presented to the instructor. The student is responsible for scheduling the exam dates with the DRC. Students with disabilities should follow this procedure as early as possible.

**U MATTER, WE CARE:** Your well-being is important at UF. The "U Matter, We Care" initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the "U Matter, We Care Team" can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

**EVALUATIONS:** Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. These open during the last 2/3 weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

**GENERAL EDUCATION REQUIREMENTS:** This course satisfies the general education program requirements for the Physical Sciences at the University of Florida. More information regarding the program objectives, student learning outcomes, and specific goals for CHM2045/CHM2046 can be found in the *General Education Program Requirements* document found on Canvas. The following learning outcomes will be assessed throughout the course.

Area	Institutional Definition	Institutional SLO
<b>CONTENT</b>	Content is knowledge of the concepts, principles, terminology and methodologies used within the discipline.	Students demonstrate competence in the terminology, concepts, methodologies and theories used within the discipline.
<b>COMMUNICATION</b>	Communication is the development and expression of ideas in written and oral forms.	Students communicate knowledge, ideas, and reasoning clearly and effectively in written or oral forms appropriate to the discipline.
<b>CRITICAL THINKING</b>	Critical thinking is characterized by the comprehensive analysis of issues, ideas, and evidence before accepting or formulating an opinion or conclusion.	Students analyze information carefully and logically from multiple perspectives, using discipline specific methods, and develop reasoned solutions to problems.

**DISCLAIMER:** This syllabus represents the initial, current plans and objectives. If those need to change as the semester progresses, then appropriate changes will be communicated to the class.

**CLASS SCHEDULE**

<b>TENTATIVE Schedule (Approx # of lectures)</b>	<b>Chapters</b>
<b>Jan 7-9:</b> Intro and Review: Atoms, Molecules, and Ions (2)	1–2
<b>Jan 11-16:</b> Stoichiometry and Quantitative Chemistry (3)	3
<b>Jan 18-25:</b> Aqueous Chemical Reactions (3)	4
<b>PROGRESS EXAM 1 – Monday, Jan 28 (8:20–9:50pm) *</b>	<b>Cumulative</b>
<b>Jan30 – Feb 4:</b> Gases (3)	5
<b>Feb 6-13:</b> Thermochemistry (3)	6
<b>Feb 15-20:</b> Kinetics: Rates of Reaction and Rxn Mechanisms (4)	16
<b>Feb 22:</b> The nature of light & Quantum Mechanical Model of the atom (1)	7
<b>PROGRESS EXAM 2 – Monday, Feb 25 (8:20–9:50pm) *</b>	<b>Cumulative</b>
<b>Feb 27 – Mar 11:</b> Electron Configuration and Periodic Trends (3)	8
<b>Mar 13-18:</b> Types of Chemical Bonding (3)	9
<b>Mar 20-27:</b> Lewis Structures and Molecular Geometry (4)	10
<b>PROGRESS EXAM 3 – Friday, Mar 29 (8:20–9:50pm) *</b>	<b>Cumulative</b>
<b>Apr 1-3:</b> Theories of Covalent Bonding (3)	11
<b>Apr 5-12:</b> Intermolecular Forces of Attraction; Liquids and Solids (3)	12
<b>Apr 15-22:</b> Solutions and Colligative Properties (4)	13
<b>PROGRESS EXAM 4 – Tuesday, Apr 23 (8:20–9:50pm) *</b>	<b>Cumulative</b>
<b>Apr 24:</b> TBA	13
<b>FINAL EXAM – Saturday, Apr 27 (12:30 – 2:30 pm) *</b>	<b>Cumulative</b>

## Notes:

- 1. Exams dates are firm, and will not change.
- 2. Exams are scheduled outside class-time. Make sure you contact me early if you have any schedule conflicts with these dates.
- 3. Official UF Holidays (no classes): Jan 21 (MLKJr), Mar 4–8 (Spring Break)